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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/581,182

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EXAMINER

HITESHEW, FELISA CARLA

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/581,182	<b>Applicant(s)</b> TESHIMA ET AL.	
	<b>Examiner</b> Felisa C. Hiteshew	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-28 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/29/2006 &amp; 12/18/2006</u> .                             | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The PTOL 1449s of 08/29/2006 & 12/18/2006 have been received, reviewed and considered.

### ***Specification***

In the specification, page 1, after the title, please insert on the line below

“ARTIFICIAL CORUMDUM CRYSTAL” the following:

--This application is a 371 of PCT/JP04/17751 11/30/2004--.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 40-26525.

JP '525 teaches a hydrothermal synthesis method for producing gigantic crystal colored corundum single crystals, wherein the shape and color of the crystal are changed as desired (See pages 3-4).

4. Claims 19-24 are rejected under 35 U.S.C. 102(b) as being anticipated by

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JP 63-017297.

JP'297 teaches synthesizing a ruby single crystal by using a flux by temperature difference method. One or more colorants are selected from lithium molybdate, sodium molybdate, potassium molybdate, molybdenum trioxide, lead oxide, lead fluoride, tungstate, etc... , are used to form a flux. Aluminum oxides is used as a raw material substance to be mixed with chromium oxide, etc, as a colorant, etc..., sintered and added to the flux.

5. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by reference JP 59-152289.

JP '289 teaches that the production of blue sapphire by the floating zone method using crystals of corundum as seeds, SiO<sub>2</sub> is added to the starting mixture and the crystals are synthesized. Alumina is combined with Fe<sub>2</sub>O<sub>3</sub> and TiO<sub>2</sub> as colorant, and SiO<sub>2</sub> as a stabilizer to the mixture.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 8, 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 40-26525.

JP '525 teaches a hydrothermal synthesis method for producing gigantic crystal colored corundum single crystals, wherein the shape and color of the crystal are changed as desired (See pages 3-4).

The difference being that JP '525 does not teach adding vanadium as a coloring component, a nickel compound heated to generate a nickel ion or a vanadium compound to generate a vanadium ion. However, in the absence of unobvious results, it would have been obvious of one of ordinary skill in the art to optimize and modify the product, as taught by JP '525, to ensure proper orientation (See col. 2, lines 10-22; col. 5, line 22 to col. 6, line 17; tables 1 to 3 and Fig. 2). The motivation being one can create optimal colored corundum single crystals.

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10. Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over reference JP 63-017297.

JP'297 teaches synthesizing a ruby single crystal by using a flux by temperature difference method. One or more colorants are selected from lithium molybdate, sodium molybdate, potassium molybdate, molybdenum trioxide, lead oxide, lead fluoride, tungstate, etc... , are used to form a flux. Aluminum oxides is used as a raw material substance to be mixed with chromium oxide, etc, as a colorant, etc..., sintered and added to the flux.

The difference being that JP' 297 does not teach a titanate compound heated to generate a titanium ion, a nickel compound to generate a nickel ion or a vanadium compound to generate a vanadium ion. However, in the absence of unobvious results, it would have been obvious to one of ordinary skill in the art to modify and optimize the raw material with any Group VII elements in order to ensure proper orientation.

### ***Double Patenting***

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

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be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-4, 6-15 and 17-18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 17-19, 21, 23-27, and 31-25 of U.S. Patent No. 10/589,546. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications teach a similar hexagonally dipyramidal corundum crystal along with the process for producing a corundum crystal.

***Allowable Subject Matter***

13. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

14. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter: The most relevant prior art of reference was that which was submitted by the applicants. However, they do not teach nor fairly suggest singularly or in any combination thereof a process for producing an artificial corundum crystal having a hexagonally dipyramidal shape by using a flux method, wherein the alkali metal

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compound which is heated to generate at least one kind of alkali metal oxide is selected from a group consisting of  $\text{Li}_2\text{O}$ ,  $\text{Na}_2\text{O}$  and  $\text{K}_2\text{O}$ .

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Felisa Hiteshew whose telephone number is (571) 272-1463. The examiner can normally be reached on Mondays through Thursday from 5:30 AM to 4:00 PM with Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mikhail Kornakov, can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-1463.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866- 217-9197 (toll-free).

/Felisa C. Hiteshew/  
Primary Examiner, Art Unit 1792



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